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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/785,452	02/20/2001	Yoshinori Miyaki	500.39590X00	5038

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EXAMINER	
CRUZ, LOURDES C	
ART UNIT	PAPER NUMBER

2827

DATE MAILED: 06/06/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/785,452	<b>Applicant(s)</b> MIYAKI ET AL.
	<b>Examiner</b> Lourdes C. Cruz	<b>Art Unit</b> 2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 18 April 2002.

2a)  This action is **FINAL**.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) 1-15 is/are pending in the application.

4a) Of the above claim(s) 11-15 is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1-10 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) 11-15 are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)  The proposed drawing correction filed on \_\_\_\_\_ is: a)  approved b)  disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)  The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)  All b)  Some \* c)  None of:

1.  Certified copies of the priority documents have been received.
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a)  The translation of the foreign language provisional application has been received.

15)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)      4)  Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)      5)  Notice of Informal Patent Application (PTO-152)  
3)  Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_      6)  Other: \_\_\_\_\_

## DETAILED ACTION

Applicant's election without traverse of Claims 1-10 in Paper No. 5 is acknowledged.

### ***Claim Objections***

Claims 1-10 are objected to because of the following informalities: See that the claims recite "a melting point". However, see that metals, etc. have ONLY one melting point. Therefore, it is appropriate and preferable that the claims recite "the melting point" since such recitation will not lack antecedent basis. Appropriate correction is required.

Claims 9 and 10 recite a mounting substrate comprising a circuit board. A circuit board is already inherent from the preamble.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites "the other portions". Claim 8 recites "the inner lead portion". Claim 10 recites "the solder having Pb". These quoted phrases lack antecedent basis.

Claims 1 and 10 recite, "to be connected". See that "to be" has rendered the claim indefinite. It is unclear if this refers to what already has been introduced in the claim as a connected part (the connected member).

Claims **1,2 and 3** recite a solder "having Pb as a main component" and containing no Pb. This is very confusing to the examiner and has rendered the claim indefinite since the claim is unclear.

Claims **1-7,9, and 10** recite "a portion" a multiplicity of times. It is unclear if Applicant is referring to the same or different portions of the device. See that the claims also introduce "a member" more than once.

Claims **2,3,4 and 7** recite "a portion outside a portion". The claim should be properly drafted to avoid such indefiniteness. The scope of the claim is unclear.

Claims **4,5,6 and 7** recite a Pb-free metal layer having "a melting point higher than ... and containing no Pd as a main..." It is unclear to the examiner if the Pb-free layer has no Pd, or if if the Sn-Pb alloy has no Pd. Therefore, the claims are not only unclear, but also indefinite.

Claim **8** recites "a lead" in which... "an inner lead"..."an outer lead" is plated. Then, the claim recites "the inner lead of said lead". Does the lead comprise inner and outer leads? It is unclear if there are 3 different recited leads.

Claim **8** also recites "is not composed of only Pd". The phrase in itself is unclear.

See the multiple objections and rejections to the claims above. Due to the abundant indefiniteness in the claims, they have become very unclear to the examiner. Therefore, the claims have been examined only as best understood by the examiner.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Kinghorn (US 5635755).

Kinghorn discloses a semiconductor device comprising a connecting member 52 having a conductivity; a connected member 16 in which a metal layer including Pd 44 is provided at a portion to which said connected member is connecting member 52 is connected; a resin 54 molding said portion to be connected; and a member 12 electrically connected to said connected member in which an alloy 46 is provided outside the resin.

Regarding claims 9 and 10, see that the prior art teaches solderability of the leads to a board (Col 1, lines 13+).

The prior art also discloses lead-free solder (Col 3, lines 6+). Also see that the Tin alloy 46 is deposited only on the external leads (Col. 3, lines 30+).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lourdes C. Cruz whose telephone number is 703-306-5691. The examiner can normally be reached on M-F 10:00- 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Lourdes C. Cruz  
Examiner  
Art Unit 2827

  
Lourdes Cruz  
May 27, 2002

  
DAVID L. TALBOTT  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800